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Docket CT-DST-1

**STEREOTAXIC MANIPULATOR WITH RETROFITTED
LINEAR SCALES AND DIGITAL DISPLAY DEVICE**

ABSTRACT OF THE DISCLOSURE

A convenient low-cost system is disclosed for digitally displaying instrument locations during a stereotaxic procedure on an animal such as a rat or mouse. This system, which can be retrofitted onto most types of existing stereotaxic manipulators, uses three optical or capacitance scaling devices, mounted orthogonally. An electronic reader head interacts with each scaling device, to measure the position and travel of the manipulator along the medial-lateral (X), anterior-posterior (Y), and dorsal-ventral (Z) axes. Each reader head sends electronic signals to a small display box that can be placed or mounted in any convenient location, or to a computer with a monitor, and all three coordinates are displayed continuously. This system provides a simple zeroing function, which can set all values to zero when an instrument tip reaches a fixed location such as the bregma point on a skull. "Data-grab" capabilities allow the system to record and/or print the coordinates of the instrument at any step or time; if a computer is used, complex data-handling can be provided. An inexpensive system provides a resolution of 5 microns, which is roughly half the diameter of a typical cell; finer resolutions (such as 1 micron) can also be provided. This system is not bulky or cumbersome, and allows the use of optical microscopes and/or video cameras with magnifying lenses for video recording and real-time video displays on a nearby monitor.

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